

Activated Knowledge/Ignorance or Inert Information? - case of opioid crisis

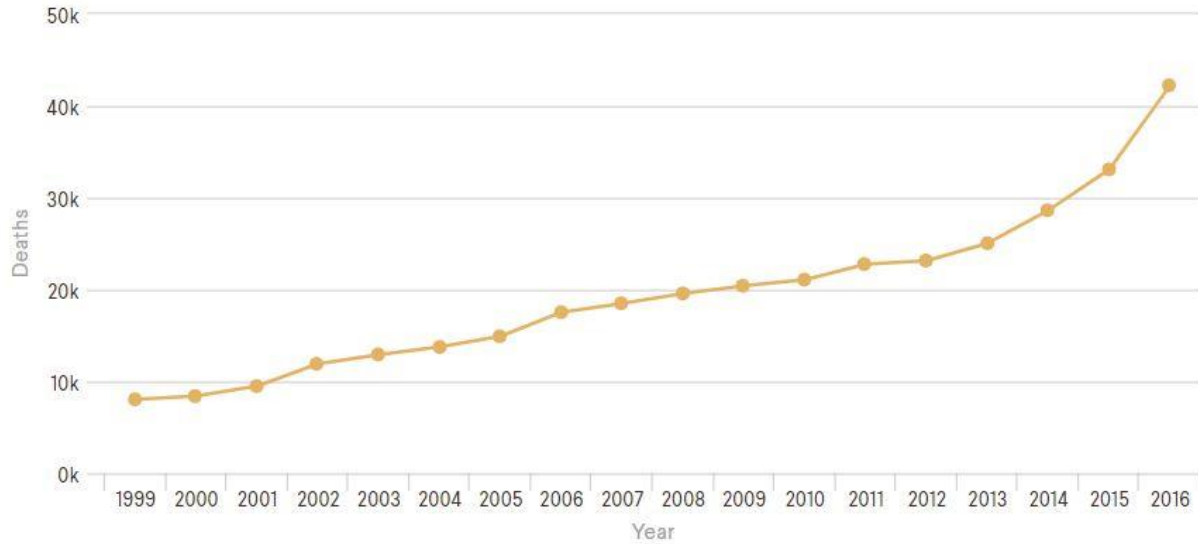
One issue that I consider to be important but that I do not consider myself to be proficient in is the opioid crisis facing the U.S. I believe that this issue is of great social importance as drug addictions can be incredibly damaging not only to people's physical and mental health, but also to their livelihoods and to societies that suffer from high addiction rates. The immediate thoughts that come to my mind when presented with the questions of "what is the cause of the opioid crisis?" and "how do we solve it?" are as follows: The opioid crisis is a problem facing the United States wherein large percentages of medical patients are being prescribed opioids as pain killers for medical problems. These opium-based medications are highly addictive and result in the patients developing an addiction to the painkillers. Following dismissal from the hospital, the patients are forced to find ways to sate their addiction, whether through obtaining opium-based medications or through opium-based drugs such as heroin. The solution that I see to this problem is to replace opium-based painkillers with other, non-addictive painkillers and to provide rehabilitation programs for people suffering from opium addiction. While I don't have any evidence to back these claims, my current beliefs are that such a solution would be not only feasible, but also prove to be cheaper than the current costs of imprisoning and providing medical aid to opium addicts.

In order to research this problem, I first turned to Google. I used a variety of search term combinations including "opioid crisis," "opioid crisis facts," "opioid crisis solutions," and "opium problem in US." I looked through the first page of search results for each combination and selected sources for further viewing that seemed, at first glance, to be trustworthy. I prioritized sources with .gov urls, followed by .org urls as well as other sources that appeared to be from NGOs or research groups. After I had selected a wide range of sources, I tried to identify the publisher of each source and then used Google to run a "background check" on the source in attempt to identify its origin, political slant, funders and other elements that could give it a bias. The sources I ended up using were a mix of news articles and articles and fact sheets published by NGOs and Government Agencies including the Center for Disease Control and the Department of Health and Human Services. While I trusted the Government Agency sheets to be mostly non-biased as they were likely based on census data, I treated the sheets and articles from the NGOs and news networks with a bit more suspicion.

The main results of my research confirmed some of my original thoughts, but showed that the problem is far worse than I had originally believed and that my proposed solutions, while good in theory, are more difficult in practice. Firstly, opium-based medications and drugs are not the only source of addiction in the opioid crisis. Synthetic opioids such as Fentanyl also play a role as vectors for abuse. This makes the problem harder to control as restrictions on imports or use of opium will not prevent the development of synthetic opioids. Second, the opioid crisis is not an incredibly recent problem. While the number of deaths have increased in recent years, U.S. opioid overdose deaths have been steadily rising since the 90s when opioids became commonplace as prescription medication. This is clearly shown in this graph from the National

Institute on Drug Abuse and Center for Disease Control:

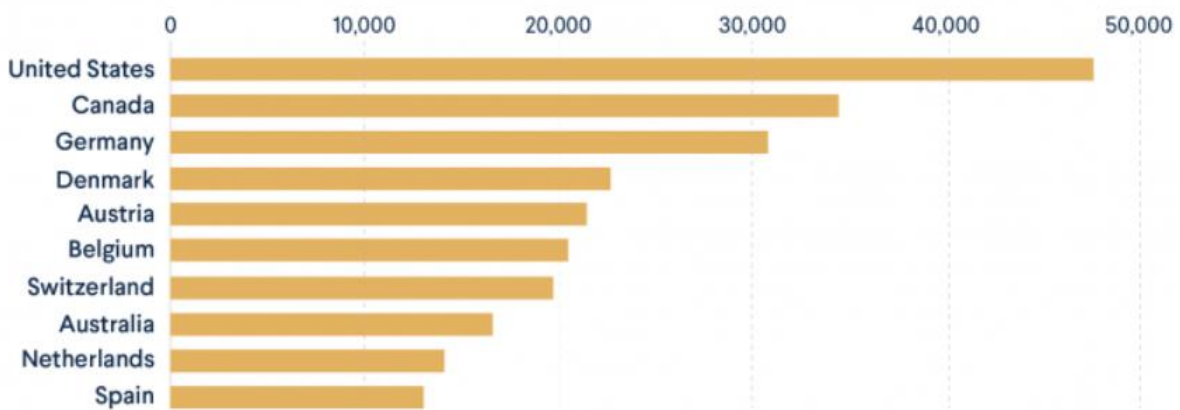
U.S. Opioid Overdose Deaths



Further, this problem is not only prevalent across almost the entire U.S., but it is also affecting other North American and European countries.

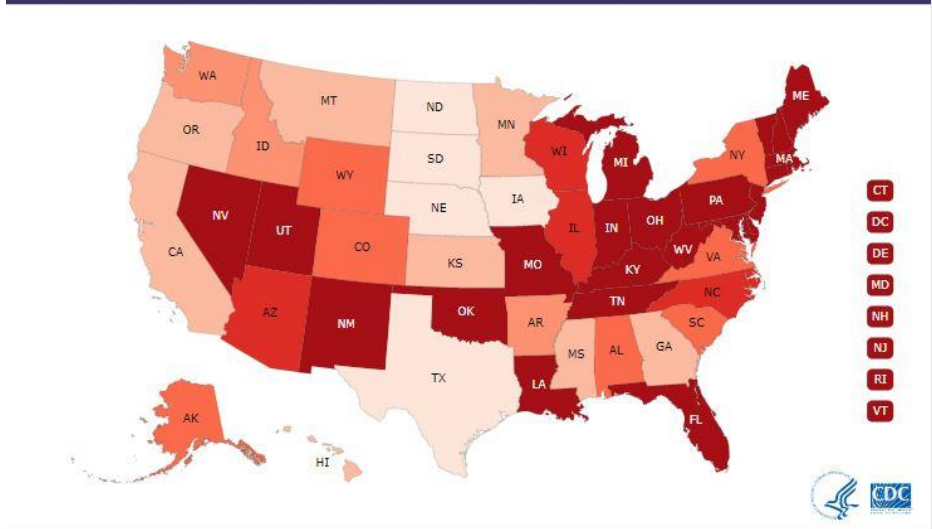
Countries Consuming the Most Opioids

Standard Daily Opioid Doses Per Million People, 2013–2015



Source: UN International Narcotics Control Board

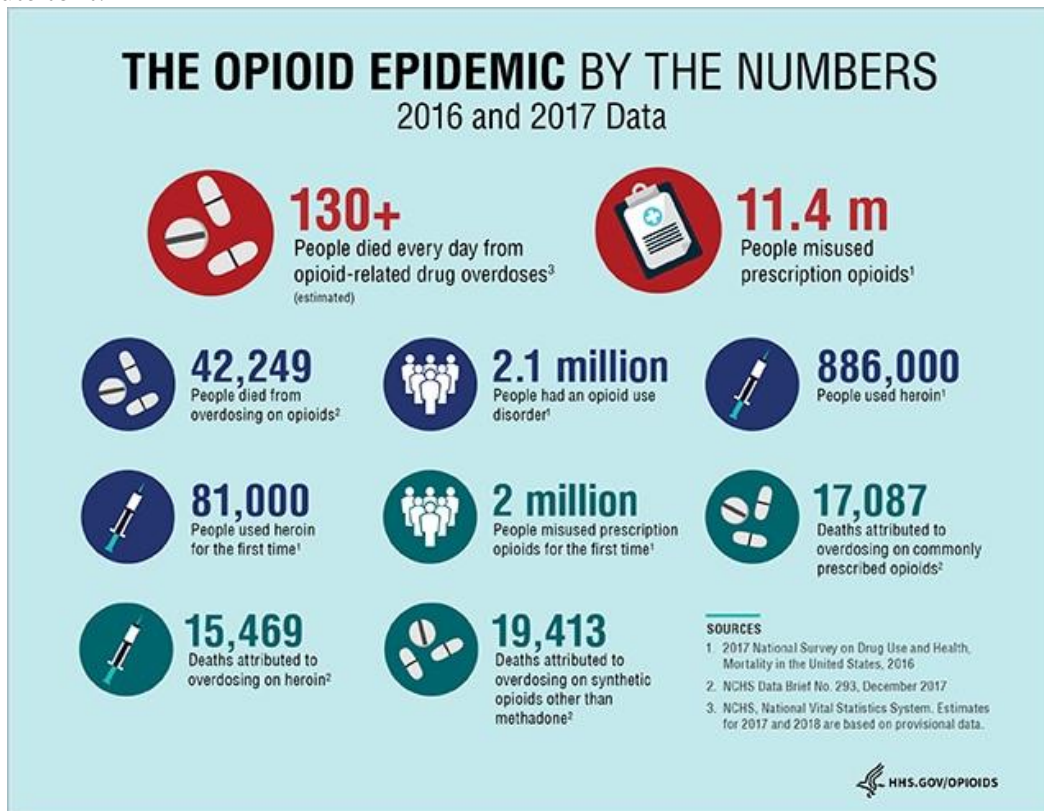
Number and age-adjusted rates of drug overdose deaths by state, US 2016



Legend

- 6.9 to 11.0
- 11.1 to 13.5
- 13.6 to 16.0
- 16.1 to 18.5
- 18.6 to 21.0
- 21.1 to 52.0

This graphic from the Department for Health and Human Safety further shows the extent of the opioid crisis, and the ways different methods such as drugs, medications and synthetics contribute to it:



These all showed that the extent of the crisis was far greater than I thought as it affected millions of people and killed tens of thousands of people every year in the U.S. alone. Further, when researching possible solutions to the opioid crisis, I found that some of my ideas were already being tested. New CDC and HHS guidelines encourage doctors to limit their prescriptions of opioids. However, this is difficult as many other treatment options are more expensive, and some doctors have reported that patients directly request opioids, whether due to past experience with them or other reasons.

Looking back on my initial views of this problem, I can see that almost all my initial knowledge was inert information. It was information that I had overheard during a conversation, been told by a friend or read in a news article. It was not false or ignorant, but I did not have a true or deep understanding of the problem. Instead, I just knew that there was a problem, and the basic details surrounding the problem. After doing some research into the Opioid Crisis, I believe that I have to update my view to make use of some of the activated knowledge my research has helped create. First, this is a problem that is not isolated within the U.S., but rather affects multiple countries in North America and Europe. Second, while there are alternatives to opioids as pain medication, these are not effective for all patients and can sometimes be more expensive, creating problems for patients who are unable to afford the more expensive treatment. As such, one vital element in solving this crisis will be to devote more effort into developing cheaper, effective alternatives to opioids as pain medication. Finally, there are many more ways to confront the problem than my original ideas. Looking at the way other countries confront the opioid crisis has shown that the U.S. policy of imprisonment and destruction of drug supply lines is not the only option. In the Netherlands, the legalization of other, weaker drugs such as marijuana is used to dissuade opioid use and as an alternative to opioids as painkillers. In Canada, safe, monitored drug-use sites have been established to provide users with a safe area to use drugs, greatly reducing the risk of death due to overdose and putting them in direct contact with personnel who can help the rehabilitate without the fear of imprisonment.

Sources Used

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Part III

The topic I chose for this part was the opioid crisis I discussed in Part II. I chose this part as I felt that it was an area that my participants were not proficient in. Rather, like me, most of their information regarding the issue would be inert information and activated ignorance. This would allow me to compare their views before and after thinking critically about the situation, and to see how this compared to my own process of going from inert information into activated knowledge regarding this crisis.

The questionnaire I used (**FIG I**) asked the responder to answer a few questions regarding their knowledge about the Opioid Crisis, including naming opioids and their opinions on the crisis' importance and correct responses, as well as their opinion on their own open-mindedness and critical thinking ability. Despite the instructions, I decided to ask for the questions regarding open-mindedness and critical thinking ability after the questions on the Opioid Crisis as I felt that asking them beforehand could create a statistical bias by priming the respondent's answers regarding the Opioid Crisis. Asking them how open minded they are or how good they are at critical thinking beforehand could have led them to take more time when answering the questions and reassess their own beliefs and judgements to seem more open-minded and critical instead of immediately answering them using their normal level of open-mindedness and critical thinking.

The first respondent to my survey (**FIG II**), Subject 1, was a Junior majoring in Finance. Subject 1 had very little confidence in their knowledge regarding the Opioid Crisis. Their views regarding the Opioid Crisis, such as discussing the problems with addiction, demonstrated large amounts of inert information, similar to the inert information I originally held regarding the crisis. However, Subject 1 was able to recognize that they were using lots of inert information, even if they didn't use this term to describe it, in their reflections on their ability as a critical thinker and their open-mindedness. I feel that Subject 1 has the ability to be a strong critical thinker and apply those skills to their interpretation of the Opioid Crisis, but that they currently lack the training and information to do so.

The second respondent to my survey (**FIG III**), Subject 2, was a Sophomore majoring in Computer Science. Subject 2 had greater confidence about their knowledge regarding the Opioid Crisis. Their views regarding addiction showed a greater level of activated knowledge than Subject 1, as they identified that there must be some underlying cause for the addiction compared to Subject 1's response that seemed to identify "pleasure" as the underlying cause for drug abuse. Further, Subject 2 was able to identify how certain solutions such as fines and jail time would not help to solve the problem and had a greater understanding of the impact that the situation had on society, identifying it as a leading cause of death instead of just saying it made lives difficult. However, while Subject 2 seems to be a better critical thinker, they still have some gaps in their information regarding the Opioid Crisis as they are unable to name any opioids despite rating themselves as a 6 in terms of knowledge on the crisis. I believe that this shows that while Subject 2 is able to think critically, they are also suffering from the Dunning-Kruger effect. Subject 2's ratings on their open-mindedness and critical thinking ability further support the idea that they

FIG I

Questionnaire

Please answer the following questions based on your current knowledge regarding the U.S. Opioid Crisis. Please do not conduct any external research on the subject.

Questions:

1. How would you rate your knowledge regarding the Opioid Crisis on a scale from 1-10?
 - a.
2. What is your opinion of people who use illicit drugs?
 - a.
3. What is your opinion of people who abuse prescription medications?
 - a.
4. Can you name any opium-based drugs? Medications?
 - a.
5. What do you believe is the correct legal response to the use of illicit drugs? To the abuse of prescription medications?
 - a.
6. How important is the issue of the use and abuse of opium-based drugs and medications to society?
 - a.
7. On a scale of 1-10, how would you rate your own open-mindedness?
 - a.
8. Please explain your above answer.
 - a.
9. On a scale of 1-10, how would you rate your own ability as a critical thinker?
 - a.
10. Please explain your above answer.
 - a.

FIG II

Questions:

1. How would you rate your knowledge regarding the Opioid Crisis on a scale from 1-10?
 - a. 1
2. What is your opinion of people who use illicit drugs?
 - a. I generally don't think that they should be using them. A lot of illicit drugs can be addicting and put that person in a rough spot. However, it makes sense that pleasure is addictive.
3. What is your opinion of people who abuse prescription medications?
 - a. Medications can also be addicting. It's a very tough thing to gauge. On the one hand it helps, but if abused (probably due to addiction), then it can be detrimental to a person.
4. Can you name any opium-based drugs? Medications?
 - a. I have no clue. One thing I have heard a lot from overhearing people is that some people don't think it's fair that opium-based medications are allowed, but marijuana in some states is not.
5. What do you believe is the correct legal response to the use of illicit drugs? To the abuse of prescription medications?
 - a. I think if caught, they should have to go through an effective rehab program. If they refused to do this, maybe go to prison because they can put themselves and others in danger.
6. How important is the issue of the use and abuse of opium-based drugs and medications to society?
 - a. It is very important. People who become addicted have difficult lives.
7. On a scale of 1-10, how would you rate your own open-mindedness?
 - a. 7
8. Please explain your above answer.
 - a. Of course I'm biased in my beliefs, but I do make an effort to listen to seemingly opposing viewpoints. I am often ignorant about issues as well, so listening is also important to me. There are often very good points each side can make.
9. On a scale of 1-10, how would you rate your own ability as a critical thinker?
 - a. 4
10. Please explain your above answer.

- a. I tend to regurgitate material that I learn without creatively applying them. It's probably a result of taking the easy way out in answering/responding.

FIG III

Questions:

1. How would you rate your knowledge regarding the Opioid Crisis on a scale from 1-10?
 - a. 6
2. What is your opinion of people who use illicit drugs?
 - a. I believe that some are making terrible decisions and at risk of harming themselves and others, while others are simply suffering from addictions given to them by money making drug companies. Both need help.
3. What is your opinion of people who abuse prescription medications?
 - a. They need help. Someone who abuses drugs of any kind must have something going on in their lives that they feel they need the drugs.
4. Can you name any opium-based drugs? Medications?
 - a. Not off the top of my head.
5. What do you believe is the correct legal response to the use of illicit drugs? To the abuse of prescription medications?
 - a. It's hard to tell. Fines will make the situation worse, jail time will do even worse. We should focus on helping the people addicted to such drugs. People selling the drugs (illegally, or legally) should be punished so this mistreatment stops.
6. How important is the issue of the use and abuse of opium-based drugs and medications to society?
 - a. Very important and not as known about as it should be. It's one of the biggest causes of death, from my understanding, so it should be dealt with.
7. On a scale of 1-10, how would you rate your own open-mindedness?
 - a. 8.
8. Please explain your above answer.
 - a. I try to be open minded and do my best to understand all sides of the issue. At the same time, I also know that I have my own biases and will make assumptions that I shouldn't. Hopefully though since I can recognize this, I can catch myself before I do it.
9. On a scale of 1-10, how would you rate your own ability as a critical thinker?
 - a. 7.
10. Please explain your above answer.

- a. I believe I can think critically and use logic, but I also rely a lot on my gut instincts and personal feelings.

are suffering slightly from the Dunning-Kruger effect as they rate themselves very highly in both categories while simultaneously pointing out their own flaws in said abilities, flaws that would seem to warrant a lower score than they gave.

I believe that Subject 1 and Subject 2 require slightly different strategies to help them think more critically about the Opioid Crisis. Subject 2 already displays some ability as a critical thinker and already has some activated knowledge about the crisis. However, the Dunning-Kruger effect has made them overestimate their knowledge on the crisis and prevented them from seeking out further information. In order to help Subject 2 think more critically, I believe it is necessary to introduce them to further information about the crisis so as to help them understand the limits of their current understanding of the Opioid Crisis and help them increase their activated knowledge regarding the crisis. To do this, I plan to show them the graphs and data I found while researching the crisis, including information on the different types of opioids such as synthetic and the problems these can cause. This should help Subject 2 recognize their own limited activated knowledge on the subject, breaking the Dunning-Kruger effect, and allow them to form more activated knowledge using the data and information presented and to inspire them to conduct further research on the topic, thereby preventing them from falling victim to the Dunning-Kruger effect again.

For Subject 1, a slightly more intensive approach may be necessary. Subject 1 does, like Subject 2, lack areas of knowledge regarding the opioid crisis. However, a stark difference between Subject 1 and Subject 2 is that while Subject 1 is less proficient at critical thinking, they are not falling victim to the Dunning-Kruger effect when analyzing their knowledge of the Opioid Crisis and therefore recognize the limits of their own knowledge. For this reason, I believe that the best way to increase Subject 1's ability to think critically about this crisis is by teaching them how to think critically. This would mean teaching Subject 1 about heuristics such as the availability bias (which I believe had a role in choosing "pleasure" as a main cause of drug abuse) and how to recognize and counter these heuristics. Further, by teaching Subject 1 to recognize the difference between inert information and activated knowledge, they would be able to assess their own understanding of the crisis and realize that most of it is inert. Following this, Subject 1 can be introduced to the same information I found in my research and am presenting to Subject 2. With their new knowledge on how to think critically and analyze information, they will be able to process the new information and turn their understanding of the Opioid Crisis from inert information into activated knowledge.

Subject 1 was very receptive to learning about methods of critical thinking. I believe that their recognition of their own lack of ability in the area made them more accepting to the new methods of thinking. If Subject 2 was not already able to think critically, it may have been more difficult to teach them due to their inflated perception of their ability due to the Dunning-Kruger effect. However, when presented with the new information, Subject 1 did not fully use their ability as a critical thinker. Instead, they simply accepted the newly presented information as fact, thereby making their understanding of the Opioid Crisis more accurate, but still filled with inert information. There were, however, some exceptions to this. Whenever Subject 1 was presented with new information that contradicted their existing beliefs, however, they did make use of their new ability as a critical thinker. They would stop and analyze the new information in detail

before accepting it. I believe that this was likely caused due to responses from Subject 1's heuristics such as belief perseverance to the new information. However, Subject 1's training to recognize and combat these heuristics meant that they were able to recognize when their heuristics were encouraging them to reject information and to study the information critically instead before accepting or rejecting it. In this way, Subject 1's heuristics actually helped them form more activated knowledge as they responded to their heuristics with critical thinking, thereby creating activated knowledge, whereas information that didn't trigger a heuristic response simply become further inert information.

Despite the Dunning-Kruger effect, Subject 2 was also very receptive to the new information presented to them. As Subject 2 already had experience using their abilities as a critical thinker, they were able to process much of the information presented into activated knowledge and use it to support the activated knowledge they already had on the Opioid Crisis. However, it took longer for Subject 2 to process the new information as they treated it all with a level of suspicion, even if it agreed with the information they already held, and insisted on analyzing all of it before drawing any conclusions. I feel that the difference that made Subject 2 better able to process the new information into activated knowledge is that they already had experience using their abilities as a critical thinker.

My biggest takeaway from my interactions with Subject 1 and Subject 2 was that critical thinking is very much a skill that needs to be practiced. Simply knowing how to be a critical thinker does not make one a good critical thinker, just like how knowing how to play the piano doesn't make someone a good pianist. In order to be a good critical thinker, one must repeatedly practice thinking critically, similarly to the way we practiced thinking critically by analyzing multiple scenarios from poverty to climate change in class. While Subject 1 now has the fundamentals to become a good critical thinker, they lack the experience that Subject 2 has. This allowed Subject 2 to process the information presented into activated knowledge far more than Subject 1 did. However, with time and practice, I believe that Subject 1 will also be able to become a strong critical thinker. Further, being a good critical thinker does not make one immune to heuristics and the Dunning-Kruger effect, as Subject 2 showed. In order to combat this, it is also important to use critical thinking when reflecting on one's own abilities as a critical thinker to ensure that one doesn't form a biased perception of themselves.